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ABSTRACT

The purpose of this study was to examine young Children's tendencies to be task or socially oriented in an experimental situation. On the basis of past research, two independent variables were chosen: field dependence-independence and sex. It was expected that field-dependent subjects and girls would tend to be more socially oriented, while field-independent subjects and boys would tend to be more task oriented. The results from the two experimental tasks used generally failed to confirm this hypothesis. There were no significant differences in amount of imitation on the first task; and, on the second task, only the boys tended to utilize the social cue that could facilitate their performance on the second part of the task. However, field-dependent subjects did glance more at the experimenter and were more verbally dependent, in accord with the general prediction. With regard to these last results, the possibility that social orientation may sometimes serve as a task-avoidant strategy is discussed. (Author)

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YOUNG CHILDREN'S TASK VS. SOCIAL ORIENTATIONS

by

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University of California, Los Angeles

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Abstract

The purpose of this study was to examine young children's tendencies to be task or socially oriented in an experimental situation. On the basis of past research, two independent variables were chosen: field dependence-independence and sex. It was expected that field-dependent subjects and girls would tend to be more socially oriented, while field-independent subjects and boys would tend to be more task oriented. The results from the two experimental tasks used generally failed to confirm this hypothesis. There were no significant differences in amount of imitation on the first task; and, on the second task, only the boys tended to utilize the social cue that could facilitate their performance on the second part of the task. However, field-dependent subjects did glance more at the experimenter and were more verbally dependent, in accord with the general prediction. With regard to these last results, the possibility that social orientation may sometimes serve as a task-avoidant strategy is discussed.

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Several investigators have reported a difference in the way children approach an experimental task. Some are very attentive to the task, essentially screening out all other stimuli. Others are less attentive to the task and appear to be very much aware of or even dependent upon the experimenter. This phenomenon has been described in a variety of ways: source and content orientation (McDavid, 1959); task and social orientation (Dreyer & Rigler, 1969); investigator and task orientation (Keogh, 1971); and extent of outer-directedness (Turnure & Zigler, 1964).

Orientation toward the experimenter may occur for several reasons. The child may simply be affiliative and enjoy the chance to interact with the experimenter. Another possibility is that the child is seeking additional information from the experimenter about what is expected on the task. Finally, the child may attend to the experimenter as a means of avoiding the task and may have little actual affiliative or information-seeking reasons for doing so.

From an educational standpoint, the second reason is the most interesting. That is, although a child may appear to be non-task oriented in a given situation, he may in fact be seeking information about that task. If the environment provides the information, he may perform quite adequately.

Turnure (1970) is particularly emphatic in asserting that much of that which appears to be distractibility is in fact a manifestation of a problem-solving strategy. His studies have, for the most part, been directed toward the assessment of orienting behavior of mentally retarded children, but many of the findings and interpretations also have profound implications for normal children.

For example, Turnure and Zigler (1964) examined the difference in outer-directedness between normal and retarded children (mental ages 7-8). They found in one study that retarded children tended to imitate both other children and the experimenter significantly more than normal children. In a second study, the child worked on one puzzle while the experimenter worked on another. After the first was completed, the child tried the one the experimenter had assembled. Compared to normals, retardates were worse on the first task but were superior on the second. As the authors point out, these results are what one would expect if the retarded children were seeking information from the experimenter while the normal children were not. Evidently, the retarded children watched the experimenter during the first task and thereby impaired their performance on this task. However, what they learned from watching helped them to outperform the normal children on the second task.

Turnure and Zigler explain the greater outer-directedness of retarded children in terms of the relative incidence of failure these children have experienced. They have learned that they are unable to succeed by relying on their own cognitive abilities and thus are oriented toward seeking information from others. With regard to normal children, a high incidence of failure might in the same way promote a more experimenter-oriented approach to solving a problem. However, it is expected that fear of failure would not be the only reason why a child might be sensitive to social information provided during a task. For example, a child highly concerned with social evaluation might also be motivated to attend to the experimenter and any cues he might provide.

The present study will attempt to examine outer-directedness as a problem-solving approach in normal first- and second-grade children. Tasks similar to those employed by Turnure and Zigler will be used, and the dependent variables will be analyzed in terms of two independent variables: field dependence-independence and sex.

There are several reasons for examining these two variables, one of which concerns findings that field dependents are less capable on performance types of achievement tasks such as the Block Design and Object Assembly subtests on the WISC (Witkin et. al., 1962). They might therefore be expected to seek external information for the same reason that retardates are outer-directed -- previous experience that reliance on self results in failure. Other considerations will be discussed in some detail in the next two sections. Briefly, however, there is a body of literature which suggests that field-dependent persons are more socially oriented than field-independent persons. In addition, many studies indicate that girls are more concerned with social relationships than boys. Both field dependents and girls should therefore be more attuned to the experimenter in a task situation and thereby be in a better position to pick up relevant social information. How these two variables might interact in such a situation are of special, additional interest.

Independent variables

Field dependence-independence. The construct field dependence-independence (also called field articulation, analytic-global functioning, psychological differentiation) has been discussed and developed by H. A. Witkin and his collaborators since the early 1950's. Since that time, the construct has been studied developmentally, cross culturally, and in relation to numerous cognitive, perceptual, and ability indices; personality traits; and pathological disorders.

One problem with many of the studies related to this construct is that most research on cognitive styles has been based on a value system which considers the abstract-analytical-inferential cluster to be a superior mode of functioning. Spotts and Mackler (1967) provide a good example of the kinds of distinctions made as they describe "the relatively high-level organization and personal differentiation which characterize the functioning of field independent individuals and the vague, blurred and labile mode of functioning that characterize field-dependent ones."

Thus, when considering variables that relate to the development of field dependence and independence, the focus is usually on enhancing the latter. However, such a decision is not clearly correct. Silverman (1967) discusses situations in which the kind of approach used by field independents is clearly maladaptive. Arbuthnot (1969) points out that it is the field-dependent college students that tend to be interested in less analytic areas such as the social sciences and humanities. Considerations such as these prompted Kagan and Kogan (1970) to ask:

> Can one really claim that field independence from the point of view of ecological requirements and societal needs is more socially relevant and useful than field dependence? (p. 1342)

Pertinent to the above question are findings that relate field dependence-independence to a social versus task orientation. That is, a field-dependent person would be very responsive to the social or evaluative aspects of a task situation, and his performance on the task would depend, to a large extent, on these external factors. On the other hand, the performance of field-independent persons is supposedly unaffected by social stimuli. Konstadt and Forman (1965) demonstrated this relationship with fourth-grade children. The children performed a letter-cancelling task under conditions of approval and disapproval. As predicted, field-dependent subjects were consistently poorer under conditions of disapproval whereas the independent ones remained largely unaffected. These results, coupled with the finding that the field dependents glanced more than the independents during disapproval, indicate that dependent children attempt to monitor their behavior in terms of external cues and are therefore more sensitive to them.

Similar conclusions were reached by Mausner and Graham (1970) in a study of social influence with high school students. They found that field-dependent subjects responded in accordance with prior reinforcement, while field independents did not. In fact, they describe "a kind of cussedness" among field independents, for whom the amount of shift was actually lower for those who had been told they were wrong than for those who were told they were right. The authors conclude that the field-dependent subjects were more socially sensitive and thus more responsive to information provided by the experimenter as compared to the more "individualistic" field-independent subjects.

Other kinds of research also suggest that field-dependent persons are particularly sensitive to aspects of the environment dealing with other people. Messick and Damarin (1964) demonstrated that field-dependent subjects have a superior incidental memory for faces. As they point out:

> This finding is something of an anomaly in the literature on field dependence-independence -- usually when differences occur, it is the field-independent subjects who are superior on perceptual and cognitive tasks.

In a study by Fitzgibbons, Goldberger, and Eagle (1965), female college students worked on a digit symbol task while incidental recall words (social and neutral) played as a distractor on a tape recorder. A correlation of .61 related field dependence to recall on the social-incidental words. Social recall of visual material was also examined. The more field dependent a subject was, the more likely it was that she would remember characteristics of the experimenter (social) instead of characteristics of the experimental room (neutral).

In a recent study, McFall and Schenkein (1970) examined individual differences in susceptibility to experimenter bias effects, using a paradigm similar to that first employed by Rosenthal and Fode (1963). As predicted, field-dependent subjects were most receptive to the experimenter's influence. Thus, the conclusion of this as well as the earlier studies is that field-dependent as compared to field-independent persons are more sensitive to social aspects of the environment and more responsive to them.

In the present study, it is expected that field-dependent children will be more outer-directed than field-independent children in an experimental situation. This outer-directedness should be manifested in terms of greater imitativeness, higher frequency of glancing toward the experimenter; greater tendency to utilize social cues given by the experimenter; more verbal dependency; and a higher likelihood of being rated by teachers as more socially oriented, more socially sensitive, more help seeking, and less task oriented.

Sex differences. Numerous studies have reported findings which indicate that females are more "people oriented," while males are more "object oriented." According to Garai and Scheinfeld (1968), this difference occurs quite early:

> It is probably the greater interest of boys in objects which is already apparent in the first year of life that predisposes them toward the development of coping behavior and achievement motivation. On the other hand, the early manifested greater interest of girls in people guides and makes them respond to feelings, attitudes and reactions of the people in their environment. (p. 231)

Goodenough (1957) cites some very early research which found females to be more concerned with and interested in social relationships. Johnson (1932) found that boys in grades five through eleven prefer animal and adventure stories, while girls like stories involving people. Similarly, Jersild, Markey and Jersild (1933), after interviewing 500 children aged five to twelve, concluded that girls mention people more often in connection with their likes than do boys. Finally, Terman and Miles (1936), on the basis of their Attitude Interest Test, reported that females show a greater amount of sympathy and sensitivity as well as a more personal orientation to the environment.

Using these early studies as a base, Goodenough decided to probe further into sex differences in person orientation. The data collected

consisted of interviews with parents, preschool children's drawings, and children's verbalizations elicited during a Mosaic test. In accordance with the previous findings, girls drew and mentioned persons significantly more than did boys. In addition, it was found that parents expect boys and girls to differ in their interest in persons.

Females' greater interest in social relationships is further emphasized by their superiority in social memory tasks, as in recall of names and faces (Witryol & Kaess, 1957). According to the authors, this type of memory does not seem to be related to digit span memory but instead reflects attitudes, interest, and motivational variables.

Another line of research deals with social sensitivity and empathy. Dimitrovsky (1964) found significant female superiority in the ability to identify emotional meanings of vocal expressions. This relationship held at all age levels except the youngest that she used (five years). Feshback and Roe (1968) report that six- and seven-year-old girls scored higher on an empathy test than boys. The score was based on an emotional response to each story rather than just a cognitive knowledge of what the characters were doing or feeling.

There have been other findings on social sensitivity that agree with the above results; however, consistent sex differences have not been found in this area. Rothenberg (1970) found no sex differences in third- and fifth-grade children's abilities to describe how an actor felt and why he felt the way he did during tape-recorded dialogues. However, this kind of task requires more of a cognitive approach to the story in contrast to the emotional reaction studies by Feshback and Roe. This distinction may be an important one when looking at sex differences in social sensitivity.

A question directly related to the present study is to what extent a high social orientation influences the way a child approaches a task -- how he seeks information related to a task, the kinds of cues to which he attends. Exline (1963) studies patterns of visual interaction in competitive and cooperative situations. He found that women's visual activity was more oriented toward social stimuli than men's and also that women were more affected by the relevant social field conditions.

Dusek (1971) reports an experimenter bias study using a marble-dropping task with children at ages six and seven years, in which the bias effect worked only for the girls. Dusek's interpretation of this result is that girls are more likely to pick up cues given by others and use them in evaluating their performance.

Finally, Keogh (1971) reports a striking difference in the ways boys and girls approach a task. The boys were task involved and attended to

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directions, while the girls were investigator-oriented, constantly seeking assurance. Thus, girls' greater social orientation may lead them to attend more to others present in a task situation in terms of picking up cues from them or attempting to elicit information from them instead of focusing directly on the task.

In the present study, it is expected that girls will be more socially oriented than boys in an experimental situation. This social orientation should be manifested in terms of greater imitativeness, higher frequency of glancing toward the experimenter; greater tendency to utilize social cues given by the experimenter; more verbal dependency; and a higher likelihood of being rated by teachers as more socially oriented, more socially sensitive, more help seeking, and less task oriented.

Method

Subjects. A group of 40 girls and 40 boys were selected from the first and second grades of Brockton School located in West Los Angeles. The ages of the children ranged from 6 years 0 months to 8 years 3 months. They were divided into field-dependent and field-independent groups on the basis of the Gerard Rod-and-Frame Test (GRFT), a portable version of Witkins' standard test. This test is similar to a portable rod-and-frame apparatus developed by Oltman (1968), which correlates highly (r=.89) with the standard Witkin Rod-and-Frame Test.

Materials. The GRFT consisted of a box which was 48" long, 18" high, and 18" wide. A luminous frame was mounted inside at one end of the box so that the experimenter could tilt it to the left or right by manipulating a dial on the outside of the box. The rod, in the shape of a man, was mounted at the center of the frame and could be moved independently of the frame. The experimenter could read the positions of the rod and frame on a protractor-like dial. The subject looked at the rod and frame through an opening at the opposite end of the box.

Two experimental games, modified from those used by Turnure and Zigler (1964), were employed: (1) a sticker game, and (2) two object-assembly tasks, adapted from the face and auto items found in the Wechsler object-assembly tests. Both object-assembly puzzles were divided into eight pieces. They were the same size as those in the Wechsler and were cut from light, ocher poster board. The sticker game was adapted from a toy manufactured by Colorforms for Creative Playthings. It consisted of many plastic geometric forms in four colors plus a shiny black cardboard rectangle on which the plastic forms could be arranged to form a design.

Procedure. All subjects were seen individually in two separate testing sessions: one to administer the GRFT, and one for the two experimental tasks. Two experimenters were used, both female. Both experimenters were needed to test the children on the GRFT, one to help the child and one to manipulate and read the controls. For the experimental session, forty children were randomly assigned to each experimenter.

The GRFT session only lasted about five minutes. The subject's task under varying conditions was to make the man stand "straight and tall" by turning the dial located beneath the opening at his end of the box. Upon entering the room, the child was asked to stand straight and tall. He was then told to look inside the "magic box" and describe what he saw -- "a man standing straight and tall." The experimenter then rotated the man, and the child was given one practice trial, with the frame straight, to make the man stand straight again. Then a blackout baffle was lowered as the test trials began.

The test consisted of four different trial settings, repeated in two blocks. The trial settings were: (a) frame and rod both 28° left of upright, (b) frame 28° left of upright, rod 28° right of upright, (c) frame 28° right of upright, rod 28° left of upright, and (d) frame and rod both 28° right of upright. Between each trial the blackout baffle was lowered so that the subject could not watch the positions being set.

The experimental task session lasted about thirty minutes. Each child was brought individually to the experimental room and seated across from the experimenter at a small table. Indentical sticker game sets (arrangements of 40 stickers of each color plus the black cardboard) were placed in front of the child and the experimenter, and the child was told:

> We're going to play a game called the sticker game. All we do is make any design we want with these stickers. We can make people, cars, animals...anything. First I am going to make a design. Then you can make anything you want. We're going to make three designs altogether. OK?

The three designs the experimenter made were a red wagon, a green tree, and a yellow and blue house. After completing each design, the experimenter told the child that the experimenter was going to call her design a "weird wagon," "tall tree," or "happy house." Then the child was asked to make any design he wished and, when he was finished, to give it a name. This procedure continued until both the experimenter and the child had made three designs.

While the child was working on a design, the experimenter recorded the number of times the child glanced at the experimenter and checked off a verbal dependency scale reported in Kohlberg and Zigler (1967). A score of 4 was given to each verbal request of the child, which called for something more than information in reply. A simple question or request for information was given a score of 3. A score of 2 was assigned to any declarative statement which did not require a response by the experimenter. A score of 1 was given to an egocentric utterance by the child, such as muttering or talking to himself.

Next the experimenter placed the pieces of one of the two object-assembly tasks in front of the child. Half of the subjects in each group were initially given the auto puzzle; the other half were given the face puzzle first. At this time, the two experimental groups were told:

> Here are some pieces of a puzzle. When you put them together they will make something you know. I want you to put them together as quickly as you can. While you are putting yours together, I will put one together too. But you put yours together as fast as you can. OK?

The two control groups were told:

> Here are some pieces of a puzzle. When you put them together they will make something you know. I want you to put them together as quickly as you can. Do it as fast as you can. OK?

While the child was working, the experimenter timed his performance, recorded the number of times he glanced toward the experimenter, and recorded the number of times he talked according to the verbal-dependency scale. In addition, with the two experimental groups, the experimenter quickly assembled the second puzzle, left it in view for fifteen seconds, then disassembled the figure and left the pieces in view for fifteen seconds. The procedure was repeated until the child finished his puzzle or until three minutes had passed.

After puzzle 1 was removed, the pieces to puzzle 2 were placed in front of the child and he was told:

> Here is another puzzle to put together as quickly as you can. Do it as fast as you can. OK?

Again, the experimenter timed the performance and recorded glances and verbalizations.

After all children were tested, teachers were asked to rate each child on four dimensions: social orientation, help seeking, social sensitivity, and task orientation. A copy of the teacher-rating scale which was used is presented in Appendix A.

Results[1]

The eighty children tested on the GRFT were divided in half according to total deviations from the upright in degrees. The field-independent group had total scores which ranged from 4-52 degrees (mean = 28.4). The range of scores in the field-dependent group was from 55 to 510 degrees (mean = 126.5). There were 20 boys and 20 girls in each group, and the total mean score of the boys (79.4) did not significantly differ from that of the girls (75.5). The correlation between the two blocks of 4 trials was 0.82, indicating that the test was quite consistent.

There were no signficant experimenter differences, except that the number of glances recorded by one experimenter was consistently higher

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[1]Assistance in the analysis of data was provided by Dr. Susan Nummedal of the Early Childhood Research Center. Computations were carried out on the IBM 360/91 at the Campus Computing Network, UCLA, using the BMD X64, X70,03D and 08V programs.

than that recorded by the other. Since this main effect would not affect the results in any way except to increase error variance, experimenter differences are not considered in the results presented below.

Sticker game. On each design, the child was given two points if he made a design exactly like that of the experimenter and one point it it was similar; two more points if his design was exactly the same color as that of the experimenter and one more point if it was similar in color; and two final points if he used the same name as that of the experimenter and one point if the name was similar. Thus, the total imitation score on the 3 designs could range from 0-18.

The mean imitation scores, along with glancing and verbal dependency means, are presented in Table 1. Although the trends in these menas are all in the expected direction, an analysis of variance shows no significant effects.

Object-assembly tasks. The scores for the two tasks ranged from 0 to 9, one poing given for each piece correctly placed plus one bonus point given for completing the task in less than 90 seconds. An analysis of variance using a repeated measures design (Winer, 1962) was performed on the three dependent measures (scores, glances, verbal dependency) for the two tasks. The means are given in Table 2, and the results of the analyses are shown in Tables 3, 4, and 5. The significant main effect for condition ($p < .01$) in Table 3 indicates that the control subjects did better overall than the experimental subjects. The effect for type of subject ($p < .01$) indicates that the field independents did better than the field dependents on both tasks. The final significant main effect, for tasks ($p < .05$) shows that in general the children did better on the second task than on the first. However, the tendency to do better on the second task was greater for experimental than for control subjects as reflected in the condition X task interaction ($p < .05$). In addition, there was a trend for both field dependent and field independent boys, but not girls, in the experimental group to show an increase in score from the first to the second task. The boys' scores in the control group stayed at about the same level. This trend is reflected in the sex X group X task interaction ($p < .10$). Figure 1 represents graphically this trend.

Table 4 indicates significant main effects for condition ($p < .01$), type of subject ($p < .05$), and tasks ($p < .01$) on frequency of glancing. That is, the experimental subjects glanced more than the control subjects; field dependents glanced more than field independdents; and there was more glancing on task 1 than on task 2. There was also a significant condition X task interaction, which indicates that experimental subjects glanced more on the first task relative to the second than did the controls.

The verbal dependency data given in Table 5 indicates that the field-dependent children were more verbally dependent than the field independent children (main effect - type of subject ($p < .05$). In addition, there is a

significant group X task interaction ($p<.05$), indicating that the experimental subjects were more verbal on the first task, while the control subjects were more verbal on the second task.

Teacher ratings. The mean scores of the ratings for all groups are given in Table 6, and the results of an analyses of variance with repeated measures are reported in Table 7. The main effect for sex ($p<.05$) simply means that girls were rated higher than boys. The main effect for ratings ($p<.01$) indicates that children were in general seen as being highly socially oriented and sensitive, slightly less task-oriented, and relatively low on help seeking.

The more meaningful results are the interactions. The sex X rating interaction ($p<.01$) indicates that the girls were, in general, seen in a more positive way than the boys. That is, they were rated high on social orientation, social sensitivity, and task orientation, but low on help seeking. The type of subject X rating interaction ($p<.05$) indicates a similar situation for field dependents and independents. Although there was not much difference between them on the two social scales, field dependents were seen as less task oriented but more help seeking than field independents.

Discussion

Unlike previous studies, no sex difference in field dependence-independence was observed. It is possible that this difference does not occur until the children are older; but it is also possible that the lack of difference represents a generation change. Evidence from Dyk and Witkin (1965) indicates that the development of global or analytic functioning is largely under the influence of early family training rather than formal schooling. Thus, if parents are becoming less concerned with providing differential training of boys and girls, many sex differences including the ones studied here would be expected to diminish. The foregoing, however, is obviously of a highly conjectural nature.

With a few exceptions, the basic predictions of this study were not supported. Surprisingly little imitation or glancing occurred during the sticker game; and although the means for imitation, glances, and verbal dependency were all higher for field dependents than for field independents, as expected, these differences were not statistically significant. There appeared to be no sex differences at all. Thus, the expected differences resulting from a higher social orientation in field dependents and in girls were not demonstrated for this task.

The object-assembly tasks seemed to represent more of an achievement situation, and some differences did become apparent here. The field independents performed significantly better than did field dependents on both tasks, which is consistent with previous data by Witkin et. al. (1962). An interesting and unexpected finding, however, was the main effect for condition, which indicates that the control subjects did better than the experimental subjects on both tasks for all subjects. Evidently the fact

that the experimenter was working on a puzzle too during the first task had a profound effect on the performance of the experimental subjects.

However, this effect differed for boys and for girls. Figure 1 shows that, for the girls, all that seemed to be happening in all groups was a slight improvement from task 1 to task 2, a practice effect. Evidently the experimental girls gained absolutely no more knowledge about the second task than did the controls; but the fact that the experimenter was also doing a puzzle served to inhibit their performance on the first task. Relative to this score, the experimental girls did as well as the controls on the second task, on which there was no difference between the groups in the experimental conditions.

The boys, on the other hand, did seem to use the experimental manipulation to greatly increase their performance on the second task, a mean gain of approximately 2 points for both the field dependents and independents. Although this interaction effect only approaches significance, it is interesting to note that this approximates the effect that would be predicted for field dependents and for girls. That is, the socially oriented child should be attending to the experimenter, and such attention would inhibit performance on task 1 but facilitate performance on task 2.

This sex difference is difficult to explain, especially given that there was no sex difference in frequency of glancing. Experimental subjects, in general, glanced much more on the first task, which is reflected in their lower scores on this task. However, evidently the boys were able to make some use of the information they gained from glancing, but the girls were not.

A similar phenomenon occurred with the field-dependent children. They glanced significantly more than did field-independents but were unable to better utilize the available information. Thus, unlike the findings that Turnure (1970) describes, it appears that increased glancing during problem solving does not necessarily represent information-seeking behavior. Whether it instead indicates affiliative, dependent, or task-avoidant tendencies is not clear at this time.

The final finding from the object-assembly task was that field-dependent children were more verbally dependent than field-independent children, in accord with the prediction. This, along with the finding that field dependents glanced more, does lend some support for the general hypothesis that they are more socially oriented than field independents. However, their greater social orientation does not appear to facilitate their performance at a task even when social cues are provided.

According to the teacher's ratings, the teachers do not see field-dependent subjects as more affiliative or socially sensitive; however, they do rate them as more help seeking and less task oriented. These last two qualities are congruent with previous descriptions of field dependents (Witkin et. al., 1962). If teacher's ratings do accurately describe the field-dependent children, it indicates that the greater glancing and verbally dependent behavior of the dependent children might be interpreted as task avoidant behavior.

There was absolutely no support for the contention that girls are more socially oriented than boys. It is true that the teachers rated them this way; but since all three teachers were female and since girls were rated more positively, in general, it is likely that the difference simply represents a "halo" effect. Performance of girls and boys was approximately the same on all measures; and thus, perhaps a greater social sensitivity for girls, if it does exist, does not occur until a later age. On the other hand, perhaps girls' social orientation is independent of their strategy in a task situation but rather is more likely to become obvious when their attention is specifically directed toward social situations, as in an empathy study. Perhaps similar research with slightly older children will answer some of these questions.

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Table 1

Mean Total Scores for Imitation, Glances and Verbal Dependency on the Sticker Game (N=20 per cell)

Group	Imitation	Glances	Verbal Dependency
Field-dependent boys	2.93	1.91	9.90
Field-dependent girls	2.80	1.92	8.99
Field-independent boys	2.57	1.37	7.58
Field-indepdent girls	2.26	1.30	6.34

Table 2

Mean Scores of Points, Glances, and Verbal Dependency on the Two Object-Assembly Tasks (N=10 per cell)

Group	Points		Glances		Verbal Dependency	
	Task 1	Task 2	Task 1	Task 2	Task 1	Task 2
Control						
Field-dependent boys	4.1	4.0	1.0	1.0	7.3	10.6
Field-dependent girls	2.0	2.7	1.8	1.2	4.2	6.1
Field-independent boys	5.3	4.5	0.6	0.6	2.9	3.8
Field-independent girls	5.2	5.8	0.9	0.5	3.1	1.0
Experimental						
Field-dependent boys	0.8	3.4	3.5	0.7	8.4	5.1
Field-dependent girls	1.3	1.9	3.6	1.0	3.9	3.1
Field-independent boys	3.0	4.8	2.9	0.4	3.1	1.4
Field-indepdent girls	3.5	4.4	2.6	0.8	5.2	4.4

Table 3

Repeated Measures Analysis of Variance
of Object-Assembly Points

Source	df	MS	F
Between subjects	79		
Sex (A)	1	6.00	<1
Condition (B)	1	68.91	10.71**
Type of Subject (C)	1	166.06	25.82**
A X B	1	1.06	<1
A X C	1	20.31	3.16
B X C	1	0.56	<1
A X B X C	1	7.65	1.19
Error (between)	72	6.43	
Within subjects	80		
Tasks (D)	1	24.81	5.78*
A X D	1	0.31	<1
B X D	1	18.91	4.40*
C X D	1	1.06	<1
A X B X D	1	16.26	3.79
A X C X D	1	1.81	<1
B X C X D	1	0.56	<1
A X B X C X D	1	0.16	<1
Error (within)	72	4.29	

*p<.05; **p<.01.

Table 4

Repeated Measures Analysis of Variance
of Object-Assembly Glances

Source	df	MS	F
Between subjects	79		
Sex (A)	1	1.81	<1
Condition (B)	1	39.01	17.86**
Type of subject (C)	1	12.66	5.80*
A X B	1	0.31	<1
A X C	1	0.76	<1
B X C	1	0.56	<1
A X B X C	1	0.16	<1
Error (between)	72	2.26	
Within subjects	80		
Tasks (D)	1	71.55	71.12**
A X D	1	0.01	<1
B X D	1	47.31	47.02**
C X D	1	1.06	1.05
A X B X D	1	2.26	2.24
A X C X D	1	0.31	<1
B X C X D	1	0.[illegible]	<1
A X B X C X D	1	0.56	<1
Error (within)	72		

*p<.05; **p<.01.

Table 5

Repeated Measures Analysis of Variance
of Object-Assembly Verbal Dependency

Source	df	MS	F
Between subjects	79		
Sex (A)	1	84.10	1.15
Condition (B)	1	12.10	<1
Type of subject (C)	1	354.02	4.89*
A X B	1	48.40	<1
A X C	1	172.22	2.35
B X C	1	75.63	<1
A X B X C	1	27.22	<1
Error (between)	72	73.40	
Within subjects	80		
Tasks (D)	1	4.22	<1
A X D	1	0.63	<1
B X D	1	70.22	4.31*
C X D	1	14.40	<1
A X B X D	1	38.02	2.34
A X C X D	1	6.40	<1
B X C X D	1	40.00	2.46
A X B X C X D	1	0.00	<1
Error (within)	72		

*p<.05; **p<.01.

Table 6

Mean Teacher Ratings on Four Scales (N=20)

Group	Social Orientation	Help Seeking	Social Sensitivity	Task Orientation
Field-dependent boys	4.1	4.7	4.5	3.5
Field-dependent girls	5.3	3.8	5.7	4.8
Field-independent boys	4.9	3.8	5.3	4.3
Field-independent girls	5.5	2.7	5.6	5.9

Table 7

Repeated Measures Analysis of Variance on Teachers' Ratings

Source	df	MS	F
Between subjects	79		
Sex (A)	1	21.01	6.25*
Condition (B)	1	3.20	<1
A X B	1	2.11	<1
Error (between)	76	3.36	
Within subjects	240		
Ratings (C)	3	33.64	13.77**
A X C	3	23.37	9.56*
B X C	3	13.61	5.57*
A X B X C	3	1.34	<1
Error (within)	228	2.44	

*p<.05; **p<.01.

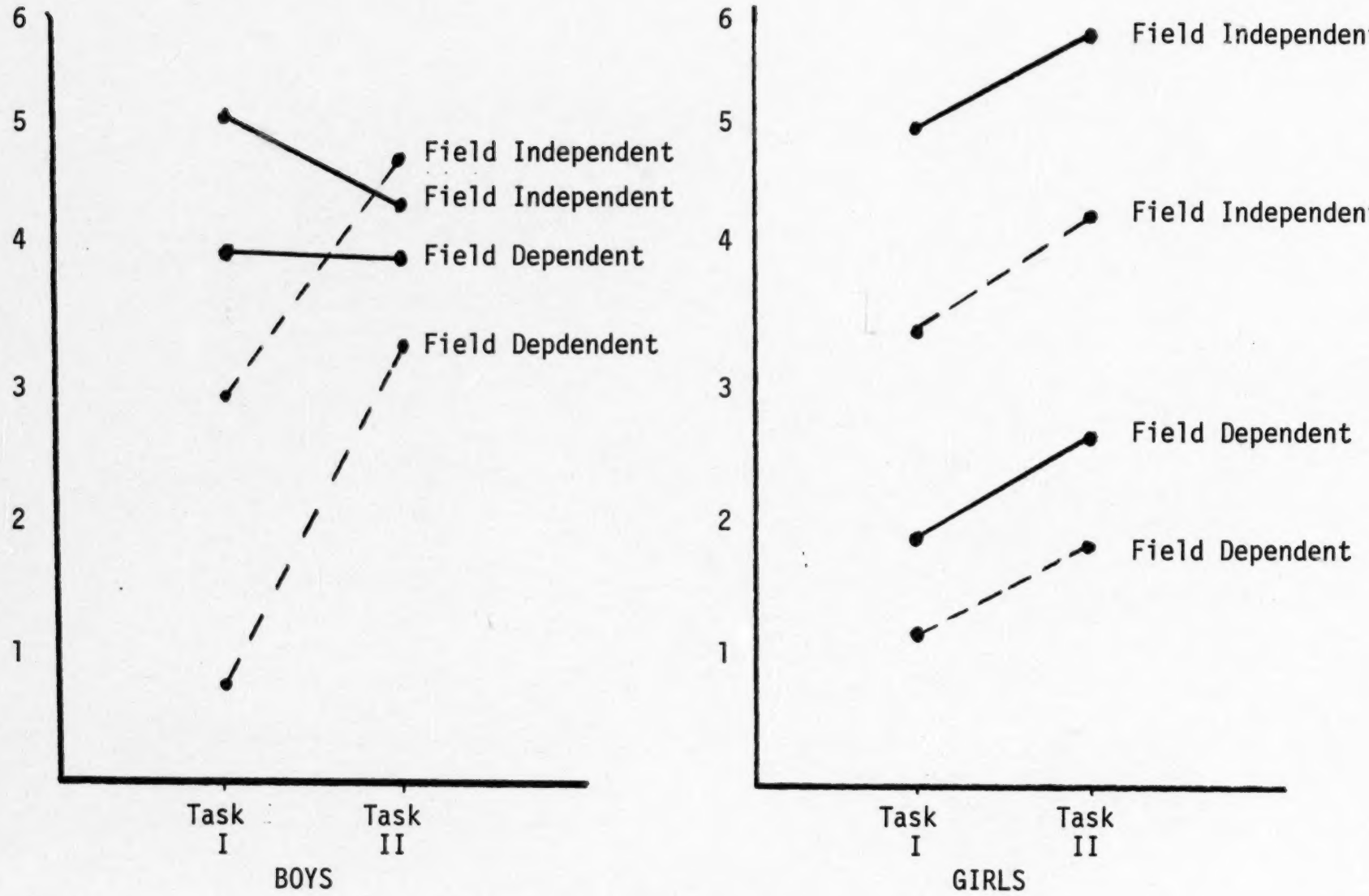
6
5
4
3
2
1
Field Independent
Field Independent
Field Dependent
Field Depdendent
Task I
Task II
BOYS
Field Independent
Field Independent
Field Dependent
Field Dependent
Task I
Task II
GIRLS
Control
Experimental

Figure 1

Appendix A

Teacher Rating Scales

Child's Name _____

For each of the four scales below, put a circle around the number that best describes the child.

I. Social orientation

1 2 3 4 5 6 7

asocial... does not get along well with others

moderately social

very social... gets along very well with others

II. Help Seeking

1 2 3 4 5 6 7

seldom seeks help when working on school projects

seeks help about half the time

usually seeks help when working on school projects

III. Social sensitivity

1 2 3 4 5 6 7

usually insensitive to feelings and needs of others...shows little empathy or concern

moderately sensitive

usually sensititve to feelings and needs of others...shows much empathy and concern

IV. Task orientation

1 2 3 4 5 6 7

minimum effort on school work... shows disinterest, lack of persistence, and is easily distracted

moderate effort

maximum effort on school work... shows interest, persistence, and is not easily distracted